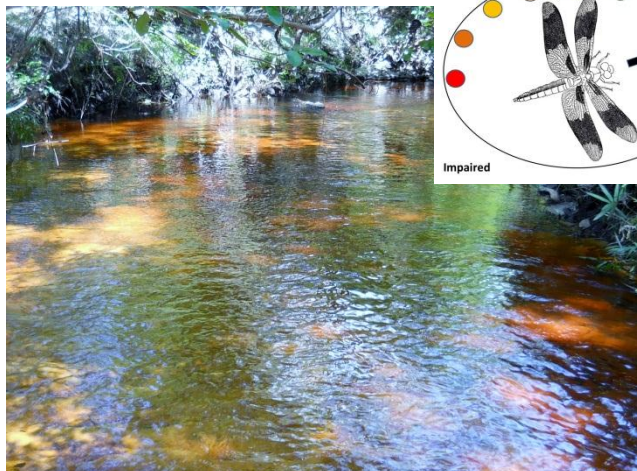


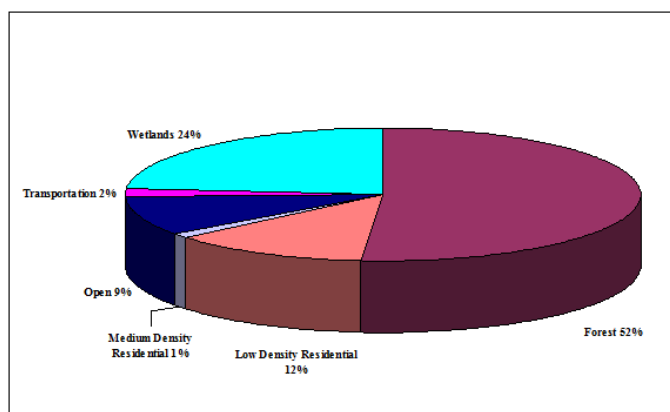
Waterbody: Polk Creek



Basin: Ochlockonee River

Polk Creek is a minimally disturbed, slightly tannic stream located in western Leon County. The stream flows west, eventually reaching Lake Talquin.

As the following pie chart shows, residential and transportation uses make up approximately 15% of the 5,595 acre watershed. Increases in stormwater runoff, and waterbody nutrient loads can often be attributed to this type of land use.



Background

Healthy, well-balanced stream communities may be maintained with some level of human activity, but excessive human disturbance may result in waterbody degradation. Human stressors may include increased inputs of nutrients, sediments,

and/or other contaminants from watershed runoff, adverse hydrologic alterations, undesirable removal of habitat or riparian buffer vegetation, and introduction of exotic plants and animals. Water quality standards are designed to protect designated uses of the waters of the state (e.g., recreation, aquatic life, fish consumption), and exceedances of these standards are associated with interference of the designated use.

Methods

Surface water sampling was conducted to determine the health of Polk Creek and met the collection and analysis requirements of Florida Department of Environmental Protection (FDEP).

Results

Nutrients

According to FDEP requirements, Numeric Nutrient Criteria for phosphorus and nitrogen (expressed as an annual geometric mean) cannot be exceeded more than once in a three year period. The nutrient thresholds and results are found in Table 1. The State criteria were not exceeded for either parameter.

Table1. FDEP's total nitrogen and phosphorus criteria for streams applied to Polk Creek. Due to low water levels, the numeric nutrient criteria data requirements could not be calculated for 2011.

Polk Creek	Total Nitrogen Threshold 1.03 mg/L	Total Phosphorus Threshold 0.18 mg/L
2007	0.44	0.02
2008	0.42	0.03
2009	0.22	0.04
2010	0.48	0.04
2011	-	-

Polk Creek	Total Nitrogen Threshold 1.03 mg/L	Total Phosphorus Threshold 0.18 mg/L
2012	0.46	0.04
2013	0.78	0.04

Fecal Coliforms

As Figure 1 shows, fecal coliform levels exceeded the Class III water quality standard (400/100 mL in at least 10% of the samples) 70% of the time over the sampling period. Since the watershed is relatively undeveloped, elevated fecal coliform levels are probably the result of wildlife in the area. FDEP is currently in the process of revising their bacterial standards. It is hoped that the proposed indicator organism (*E. coli*), along with microbial source tracking, can give staff a more reliable indicator and help determine the source of the fecal coliform bacteria.

Metals

Polk Creek lead levels exceeded Class III water quality criteria during the 1st quarter of 2013. Rainfall (0.5 inches of rain) prior to sampling Polk Creek probably contributed to lead flushing out of the nearby soils into the creeks. Relict anthropogenic sources such as leaded gasoline are most likely the source of lead. Polk Creek is naturally acidic, making it more susceptible to lead exceedances due to the bioavailability of lead at low pH levels.

[Click here for more information on metal levels in Leon County waterbodies.](#)

Other Parameters

Other water quality parameters appear to be normal for the area and no other impairments were noted.

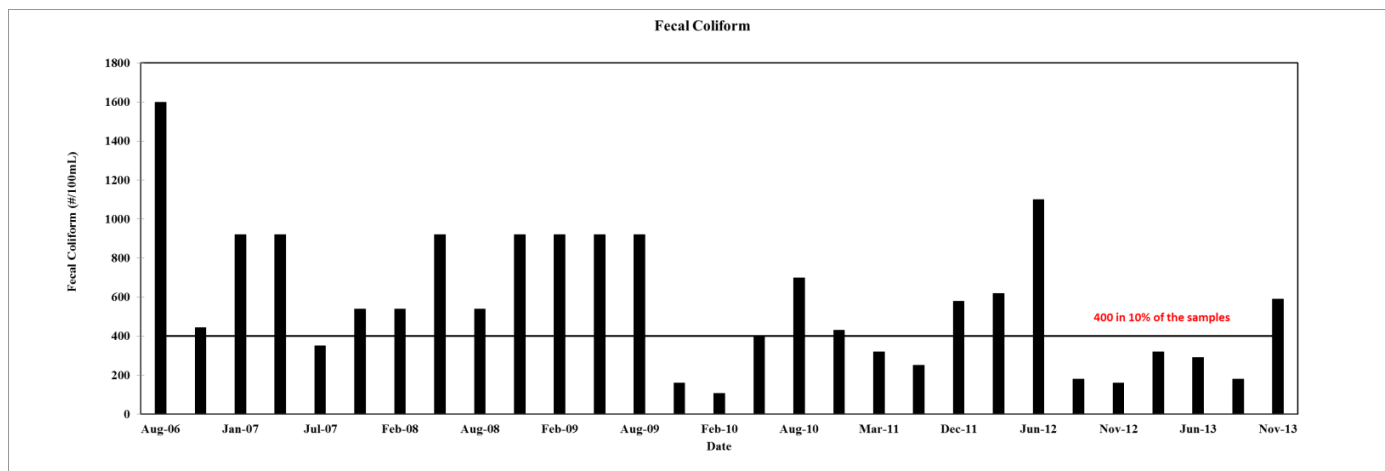


Figure 1. Fecal coliform levels (2006-2013) for Polk Creek.

Dissolved oxygen (DO)

Polk Creek did not meet Class III percent DO saturation standards during the June 2012 sampling event. This appears to be an isolated incident.

Conclusions

Based on ongoing sampling, Polk Creek met the nutrient thresholds for the Big Bend Bioregion. Fecal coliforms exceedances have continued, with the latest occurring in November 2013. Lead exceeded Class III water quality criteria in 2013. Percent DO saturation did not meet water quality criteria for the

June 2012 sampling event. Other water quality parameters appear to be normal.

Thank you for your interest in maintaining the quality of Leon County's water resources. Please feel free to contact us if you have any questions.

Contact and resources for more information

www.LeonCountyFL.gov/WaterResources

[Click here to access the results for all water quality stations sampled in 2013.](#)

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